UTAH 1115 PRIMARY CARE NETWORK DEMONSTRATION WAIVER

EVALUATION DESIGN

TARGETED ADULT MEDICAID / SUD DENTAL
ADULT CLINICALLY MANAGED WITHDRAWAL
ADULT EXPANSION
EMPLOYER SPONSORED INSURANCE

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INTRODUCTION

Utah's 1115 PCN Demonstration Waiver (hereinafter referred to as "Demonstration") is a statewide waiver that was originally approved and implemented in 2002. Since that time, the Demonstration has been extended and amended multiple times to add additional benefits and Medical programs. This proposal will evaluate the impacts and outcomes of the newly approved amendment components. The findings of the evaluation will be presented in a series reports.

A. GENERAL BACKGROUND INFORMATION

This Demonstration waiver amendment will operate through the end of the current waiver period (from April 1, 2019 - June 30, 2022). Components of the amendment (and number) relevant to this specific evaluation design include the following:

- #16 Extend dental benefits to Targeted Adult members receiving SUD services.
- #19 Provide adult clinically managed residential withdrawal services to eligible adult residents of Salt Lake County with Substance Use Disorders (SUD).
- #15 Expansion provides coverage to adult's age 19-64 who have income up to 133% of the federal poverty limit (FPL) who have limited options for affordable health coverage, and who are not eligible for subsidies to purchase coverage in the marketplace, and
- Employer Sponsored Insurance (ESI) mandates Adult Expansion beneficiaries with access to ESI, to enroll in that coverage. The state will provide premium reimbursement and wrap-around Medicaid coverage.

Adult Expansion- Key Differences from Demonstration Population I

Prior to the implementation of Adult Expansion, most individuals now eligible for Adult Expansion were eligible for the PCN program (Demonstration Population I). PCN provided a limited benefit package consisting of preventive and primary care benefits. As of April 1, 2019, PCN eligible individuals transitioned to Adult Expansion. Individuals eligible for Adult Expansion receive one of two benefit plans; traditional state plan benefits or non-traditional benefits. Adults without dependent children receive traditional state plan benefits. Adults with dependent children receive non-traditional benefits, as defined by the State's 1115 demonstration waiver. Adults in the "Current Eligibles" demonstration population also receive non-traditional benefits. Table 1 below details the differences between state plan benefits, non-traditional benefits and the PCN benefit package.

Table 1: Comparison of Adult Expansion Demonstration Population Benefits, including Changes and Limitations

State Plan (Traditional benefits)	Non-Traditional benefits (Current Eligibles & Adult Expansion)	Limitations for Demonstration Population I- PCN
Hospital Services	Some surgical exclusions	Emergency Services in Emergency Room only
Physician Services	Same as state plan	Services by licensed physicians and other health professionals for primary care services only

Vision Care	One eye examination every 12 months, no eyeglasses	One eye examination every 12 months, no eyeglasses
Lab and Radiology Services	Same as state plan	Lab and Radiology only as part of primary care services or as part of an approved emergency service as identified in the PCN Provider Manual
Physical Therapy	Visits to a licensed PT professional (limited to a combination of 16 visits per policy year for PT and OT)	Not covered
Occupational Therapy	Visits to a licensed OT professional (limited to a combination of 16 visits per policy year for PT and OT)	Not covered
Chiropractic Services- Pregnant Women an	EPSDT only	Not covered
Speech and Hearing Services	Hearing evaluations or assessments for hearing aids are covered. Hearing aids covered only if hearing loss is congenital	Hearing evaluations for hearing loss or assessments for hearing aids are covered
Podiatry Services	Same as state plan	Not covered
End Stage Renal Disease - Dialysis	Same as state plan	Not covered
Home Health Services	Same as state plan	Not covered
Hospice Services	Same as state plan	Not covered
Private Duty Nursing	Not covered	Not covered
Prescriptions	Same as state plan	Four prescriptions per calendar month are covered. Diabetic testing supplies do not count towards limit.
Medical Supplies and Medical Equipment	Same as state plan with exclusions.	Equipment only for recovery (see detail list in the PCN Provider Manual)
Abortions and Sterilizations	Same as state plan	Not covered
Inpatient Treatment for Substance Abuse and Dependency	Same as state plan	Not covered
Organ Transplants	The following transplants are covered: kidney, liver, cornea, bone marrow, stem cell, heart & lung (includes organ donor)	Not covered
Long Term Care	Not covered	Not Covered
Family Planning Services	Same as state plan	Consistent with physician and pharmacy scope of services. Not covered: Norplant, Infertility drugs, Invitro fertilization, Genetic counseling, Vasectomy, Tubal ligation.
High-Risk Prenatal Services	Same as state plan	Not covered
Medical and Surgical Services of a Dentist	Same as state plan	Not covered
Dental- Pregnant Women and EPSDT only	Dental services are not Covered. Emergency codes only.	Specific preventive and restorative dental services are covered. Emergency dental is covered.

Transportation Services	Ambulance (ground and air) for medical emergencies only (non-emergency transportation, including bus passes not included)	Ambulance (ground and air) services are covered for emergencies only.

Oral Health Impacts on General Health Conditions

Oral disease, such as dental caries, periodontal disease, tooth loss, oral lesions, oropharyngeal cancers, and orodental trauma, is a serious public-health problem. Its impact on individuals and communities in terms of pain and suffering, impairment of function and reduced quality of life, is considerable. Globally, the greatest burden of oral diseases lies on disadvantaged and poor populations. Oral disease is the fourth most expensive disease to treat[1]. There are numerous studies indicating that improved oral health is correlated with improved physical health.

Effectiveness of Oral Health Improvement on Substance Abuse Treatment

A groundbreaking study conducted by the University of Utah's School of Dentistry indicated that providing comprehensive dental care can positively enhance SUD treatment outcomes [2]. In this study a control group were not given access to dental care, while a second group of patients who were in SUD treatment received comprehensive dental services. This pilot program demonstrated that comprehensive dental care can dramatically improve outcomes related to length-of-stay in treatment, higher rates of employment, higher rates of recovery, and lower rates of homelessness.

Substance Use Disorders in the United States

Substance use and mental health disorders affect millions of adults in the United States and contribute heavily to the burden of disease.[3, 4,5] Illicit drug use, including the misuse of prescription medications, affects the health and well-being of millions of Americans. Cardiovascular disease, stroke, cancer, infection with the human immunodeficiency virus (HIV), hepatitis, and lung disease can all be affected by drug use. Some of these effects occur when drugs are used at high doses or after prolonged use. However, other adverse effects can occur after only one or a few occasions of use.[6] Addressing the impact of substance use alone is estimated to cost Americans more than $600 billion each year.[7]

Reducing SUD and related problems is critical to Americans' mental and physical health, safety, and quality of life. SUDs occur when the recurrent use of alcohol or other drugs (or both) causes clinically significant impairment, including health problems, disability, and failure to meet major responsibilities at work, school, or home. These disorders contribute heavily to the burden of disease in the United States. Excessive substance use and SUDs are costly to our nation due to lost productivity, health care, and crime. [8,9,10]

Substance Use Treatment in Utah

According to the 2016 National Survey of Drug Use and Health, in Utah there were an estimated 134,764 adults in need of treatment for alcohol and/or drug dependence or abuse. Unfortunately, there were only 13,780 adults received SUD treatment services in FY 2017. [11] Of those in treatment, 46% received outpatient, 21% received intensive outpatient, 21% participated in detox, and 12% participated in residential treatment. Seventy-one percent of those in treatment were retained for 60 or more days.

However, SUDs are preventable and treatable. The Utah State Division of Substance Abuse and Mental Health (DSAMH) has statutory oversight of substance abuse and mental health treatment services statewide through local county authority programs. SUD services are available to all Medicaid members statewide. A full continuum of SUD services becomes even more critical in an effort to address the needs of Medicaid members.[12]

An important treatment component to an effective continuum of SUD care is clinically managed withdrawal services. This service allows those with substance use disorders who need help to safely withdraw from substances, to receive this level of care. Eligible individuals must be medically stable and this service is typically provided in a social setting where structured peer support and daily monitoring to assess and ensure the medical needs of the patient are being met. Specific services provided to the patient often include: psychoeducation groups, health education, recovery support and 12-step groups. This level of withdrawal management aligns with ASAM criteria (level 3.2-WM).

B. EVALUATION QUESTIONS & HYPOTHESES

The primary goals of the waiver amendment are to decrease the number of those without health coverage, increase access to primary health care, improve dental coverage, improve SUD treatment outcomes, and reduce emergency department and uncompensated hospital costs. This evaluation design will describe how the University of Utah's Social Research Institute (SRI) and Department of Economics will evaluate the implementation of these waiver amendments. The driver diagram that follows illustrates the relationship between the outcomes and activities of the waiver amendment component. Table 3 provides details of waiver hypothesis, research questions, outcome measures, populations involved, data sources, and analytic methods.

C. METHODOLOGY

1. Evaluation Design

TAM / SUD Dental. Due to the changing and unique target population groups included in the Demonstration, a combination of quasi-experimental design approaches will be implemented in the independent evaluation. First, a single interrupted time series (SITS) design with difference-in-differences (DiD) estimation will be used to evaluate the new dental benefit change for Targeted Adults (TAM) receiving Substance Use Disorder (SUD) services.

Adult Clinically Managed Withdrawal. The SITS design approach with DiD estimation will also be utilized to control for any existing trends in SUD availability and treatment associated with the demonstration. Propensity score matching techniques will be used to minimize observable differences and ensure better estimates. To strengthen the overall design, Salt Lake County (where clinically managed withdrawal services are an allowable Medicaid expense) will only be compared to 3 other urban counties (Weber, Davis, and Utah) where the service is not Medicaid reimbursable, but where access to health care and other SUD treatment services is similar.

The independent evaluator will not be including a separate plan for conducting a cost analysis for the SUD-related demonstrations (TAM – SUD Dental and Adult Clinically Managed Withdrawal Services). The Utah Department of Health will include its plan for SUD-related cost analysis in the appendix. This cost analysis will align with and supplement the cost analysis included in the previously approved SUD evaluation design. For reporting purposes, the two SUD-related demonstrations included in this design will be included in the original SUD design report.

Adult Expansion. Similarly, the expansion population will employ the same quasi-experimental designs. The first will use SITS with DiD estimation and the second will apply both logistic regression and propensity score matching. Propensity score matching will be used to minimize bias from observable confounders that could potentially affect the outcomes. To implement propensity score matching, a logistic regression model will first be fit to the waiver implementation vs. comparison (APCD), to potential measured baseline confounders to calculate the propensity score. Baseline characteristics for matching will include age, gender, socioeconomic status, educational status, and comorbid conditions. These baseline variables that will be used for matching will be incorporated in the logistic regression to control for remaining differences between the waiver group and the matched comparison group. These two approaches (i.e. matching and factors that will be adjusted in both matching and regressions) mitigate confounding bias. The parallel trend assumption for pre-intervention outcomes in DiD will be checked. If the parallel trend assumption with pre-intervention outcomes is not met, we will include pre-intervention outcomes in our propensity score matching. A sensitivity analysis will be conducted to evaluate the potential effect of unmeasured confounding.

In an effort to increase the evaluation rigor for this design, the state will use other-state comparison groups. Specifically, to compare uncompensated care between Utah and other states that have similar Medicaid eligibility criteria but do not have similar demonstrations, the Healthcare Cost Report Information System (HCRIS) will be used. HCRIS includes annual cost reports from Medicare-certified institutional providers. While the most current data is 2018, HCRIS contains data which permits capturing uncompensated care and related costs. Cost of uncompensated care, cost of charity care, and bad debts expense are available for Utah and other states.

Employer Sponsored Insurance.

Finally, quasi-experimental design will also be used with propensity score matching in a regression model to control for differences between those with ESI offers compared to those without.

2. Target and Comparison Populations

Several target populations have been identified for this design. The first includes Targeted Adults beneficiaries with a substance use disorder (SUD) diagnosis who will be eligible for comprehensive dental services. Pre-demonstration outcomes (without dental benefit) will be compared to post-demonstration (with dental benefit). The second population will include beneficiaries in Salt Lake County with a substance use disorder where clinically managed withdrawal services are a Medicaid reimbursable service. Table 2 below summarizes those that have received SUD treatment in Salt Lake County through publicly funded treatment programs compared to residents in the comparison counties (Davis, Utah, and Weber) where clinically managed withdrawal services are not a reimbursable service.

The third population will be those qualifying for Adult Expansion. They will be compared to those who qualified prior to the expansion and with a matched insured population included in the APCD. This database contains data from health insurance carriers, Medicaid, and third party administrators in Utah. These data consist of medical, pharmacy, and dental claims as well as insurance enrollment and health care provider data. During processing these files are cleaned, standardized, and enhanced with analytics software that produces data on risk and burden of illness. Utah's APCD is a rich source of health care data. Comparison population groups in this design will vary based on the research questions and hypotheses. For some, the target population will serve as its own comparison group utilizing a single interrupted time series (SITS) design where the research question will compare service utilization differences over time. Other comparison groups will be formed using balanced matching based on age, gender, and other factors and utilizing inverse priority rating. APCD matching will include age, gender, socioeconomic status, educational status, and comorbid conditions.

The Adult Expansion group are also the target population for the Employee Sponsored Insurance (ESI) waiver component. This component requires beneficiaries to enroll in ESI when available, for which their premium will be reimbursed via enrollment in Medicaid. The comparison population for analysis will also be matched / balanced Adult Expansion members without access to ESI.

Table 2: Summary of SUD populations in Clinically Managed Withdrawal Services (DiD) design counties in Utah.

Counties with Medicaid Clinically Managed Withdrawal Services	**County Population**	**Annual number of admissions and percent served by: Outpatient / IOP/ Residential / Detox**		
		2016	2017	2018
Salt Lake County	1,137,820	(N=8,874) 36/21/10/33	(N=9,298) 35/19/13/33	(N=10,534) 30/17/17/36
Comparison Counties without Medicaid Clinically Managed Withdrawal Services				
Davis, Utah, & Weber Counties	1,205,150	(N=3,815) 55/25/15/5	(N=2,703) 55/25/15/5	(N=4,534) 51/34/9/5

Evaluation Period

Each of the waiver components have different start dates. The pre-demonstration waiver baseline periods (where baseline data are available for the waiver population identified) are included in Table 3. Data to be used for the evaluation will span the pre-demonstration period and will end 6/30/2022.

Table 3: Summary of pre-demonstration baseline start date and implementation date.

Waiver component	Baseline Start Date	Waiver Implementation Date
TAM Dental	3/1/2016	3/1/2019
Clinically managed withdrawal	4/1/2016	5/1/2019
Adult Expansion	4/1/2016*	4/1/2019
ESI	No pre-demonstration population	1/1/2020

*Only for uninsured rates and uncompensated care in Utah hospitals. Interim report due 6/2021 and Summative report due 12/2023

Evaluation Measures

The measures to be used in the TAM dental expansion include elements related to successful treatment in the Medicaid claims data including number of days in treatment and percent retained in treatment greater than 90 days. The clinically managed withdrawal component will utilize Medicaid claims data to assess emergency department utilization rates and expenditures for SUD treatment, as well as number of days in various treatment modalities. Additional measures to be examined include utilization lower intensity SUD treatment services such as outpatient (OP), intensive outpatient (IOP), and partial hospitalization as potential lower cost options to more acute residential treatment, since the adult clinically managed withdrawal services could impact these services. The adult expansion will focus on standard Medicaid outcome measures such as adults with controlled asthma, adults with an outpatient visit (with a documented BMI assessment), rate of individuals with a preventive care visit, and percent of average monthly ED visits without a diagnosis classified as an emergency, and the costs associated with uncompensated hospital care. The employee-sponsored insurance component will measure the overall cost of care.

Process measures collected for each waiver component will include the total number of individuals served by age, gender, and geographical location as well as the total number of medical and dental procedures received by enrollee.

COVID-19 Impacts

There are likely to be numerous impacts to the TAM/SUD dental, Adult Clinically Managed Withdrawal, Adult Expansion, and Employee Sponsored Insurance (ESI) components of the 1115 demonstration resulting from the novel coronavirus (COVID-19) pandemic. A challenge in trying to anticipate and address these impacts is the uncertainty of the virus spread in the population and how long the current pandemic will last. Given these limitations, there are a number of concerns and adjustments that are discussed below.

A. Implementation and Evaluation Changes

With regard to these demonstration waiver components significant adjustments will be needed to address the assumptions inherent in the driver diagrams. For example, implementation of TAM/SUD dental services were significantly impacted by the closure of dental clinics in March of 2020, less than 90 days after policy implementation. In the Clinically Managed Withdrawal expansion in Salt Lake County, SUD services were unstable in multiple locations as a result of the pandemic. Transition from in-person treatment services were delayed by several weeks until SUD treatment providers were able to establish telehealth delivery systems. Similarly service providers in comparison counties were impacted by delays and implementation-related barriers. The length of delayed implementation varied across counties. ESI policy implementation has been impacted by a number of factors. For example, and offers of ESI / take up of ESI have been negatively impacted due to the pandemic. Specifically, in Utah there were historic levels of unemployment during March-April 2020. Although the unemployment rate has decreased since then, the impacts on the state economy persists. Other influencing factors include the number of beneficiaries eligible for ESI was well below the projections anticipated by the state. This was likely indirectly influenced by the historic levels of unemployment during March – April 2020.

Other potential factors impacting the TAM/SUD policy implementation relate directly to the pandemic – forced transition from in-person SUD treatment to telehealth. For instance, one of the key SUD treatment retention motivators is random urinalysis for clients (and particularly important for those who are court-ordered). When treatment services transitioned to telehealth, urinalysis was not available which likely weakened the ability of treatment professionals to effectively engage with their clients. Conversely, the frequency of skipped appointments between clients and therapists decreased, providing more consistent level of services. However, the impacts of both of these implementation-related impacts are difficult to control or measure.

B. Data Collection

The pandemic will affect both primary and secondary data collection in number of ways. First the planned beneficiary survey of TAM/ SUD beneficiaries which was scheduled for spring 2020 will need to be adjusted. This will require a modified survey design that will include subgroup data collection. Survey content also needs to change to include targeted questions designed for retrospective response among beneficiaries who enrolled prior to the beginning of COVID-19 impacts.

An adjusted design for analyzing Medicaid data will also be required to accommodate subgroup populations with disproportionately high pandemic impacts. For example, subgroup beneficiary data

analysis could be defined based on client age and presence of a COVID-19 high risk underlying condition.

There are also obvious important cost implications associated with changes in both primary and secondary data collection, study design, and implementation. These budget amendments would be fully addressed once the bid has been awarded to conduct the community engagement evaluation.

C. Design

The current evaluation design calls for the use of both DiD and logistic regression /propensity score which will likely provide a robust outcome metric. The appropriate use of subgroup analysis previously mentioned for both primary (beneficiary survey) data collection for TAM/SUD dental and secondary (Medicaid data) data collection should strengthen the planned designs. As a result this will provide additional insight into isolating and understanding COVID-19 impacts in Utah. Most of the hypothesis that follow in Table 4 below include comparison groups (that would be similarly impacted by the pandemic)

D. Isolating Demonstration Effects

Since there is considerable uncertainty in trying to understand changes resulting from the pandemic, it may make demonstration policy effects difficult to observe. Such may be the case with very low uptake of ESI or trying to understand the impact of the adult expansion based on less than 90 day implementation period before the pandemic effects began in Utah. As a result, the independent evaluators together with the State may reconsider some of the planned analysis. For instance, since there will likely be insufficient ESI data, reducing the likelihood of viable evidence about the demonstration effects for this waiver component, key decisions regarding the appropriateness of resource allocations for this waiver component must be made.

Additionally, planned data collection spanning 2020 will require robustness checks to examine the effects of including peak pandemic time periods. However, the exact months to exclude may not be clear until additional time has passed given the unstable and frequently changing conditions of the pandemic.

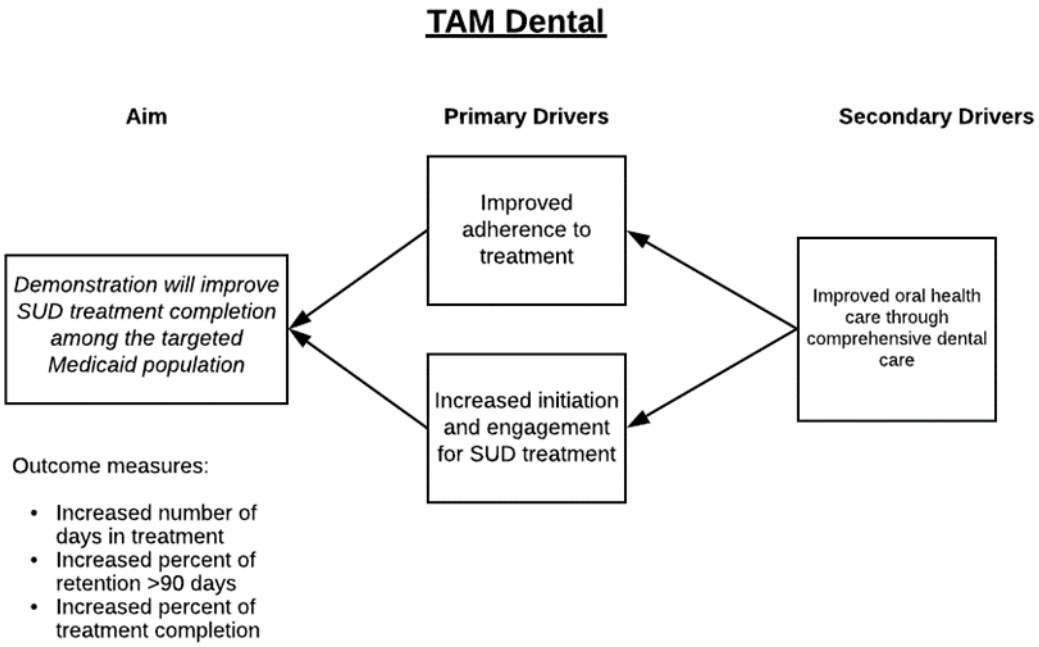
Robustness Checks

The data analysis strategy will also employ the use of robustness checks. On purpose for these checks is to assess if conclusions change following data analysis when assumptions related to the model change. This mainly applies to the extent there may be uncertainty in the way assumptions are being applied. Another more important reason is to demonstrate that the main analysis is supported. This is accomplished by conducting an analysis of core regression coefficient estimates when the regression specification is modified by adding or removing regressors. If the coefficients remain both plausible and robust, this will be evidence of structural validity. This approach will be applied using both critical and non-critical core variables.

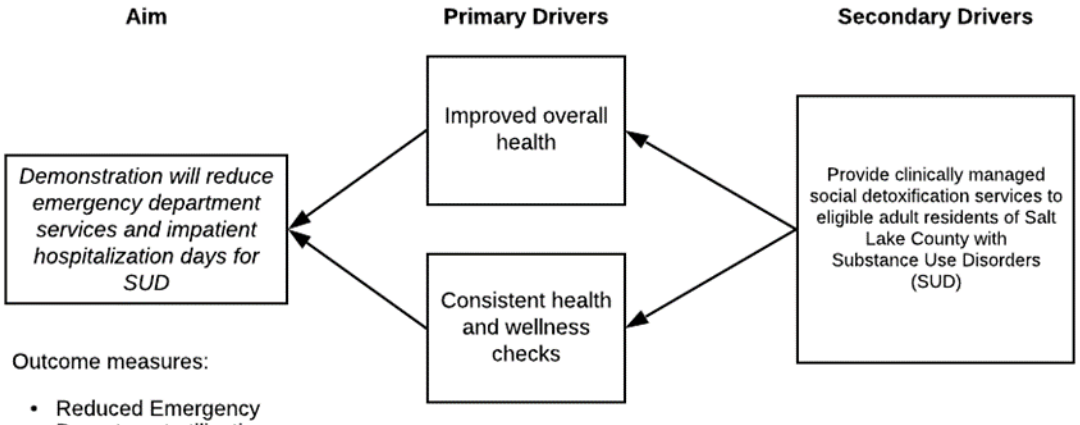
Since the Medicaid data is discrete with many categories, the fit will use a continuous regression model which will yield an analysis that is easier is easier to perform, more flexible, and also easier to understand

and explain—and then robustness check, with re-fitting using ordered logit, just to check that there are no changes in the outcome.

Driver Diagrams



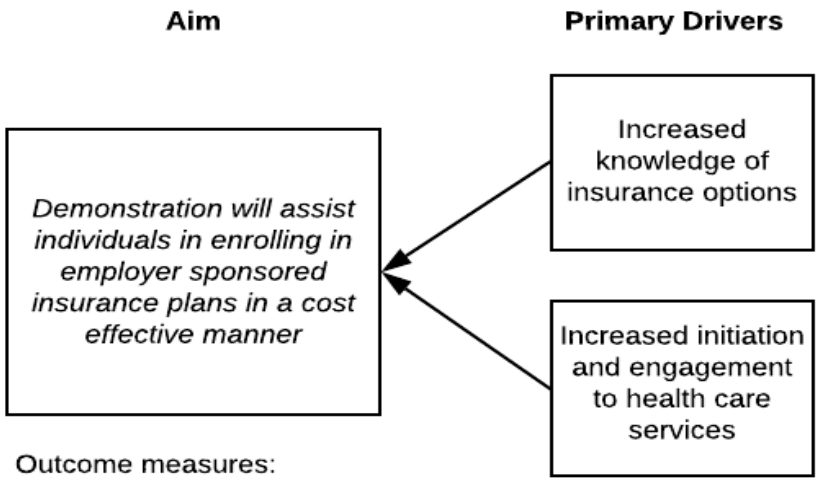
Adult Clinically Managed Withdrawal



Outcome measures:

- Reduced Emergency Department utilization rates for SUD
- Reduced Emergency Department expenditures for SUD treatment

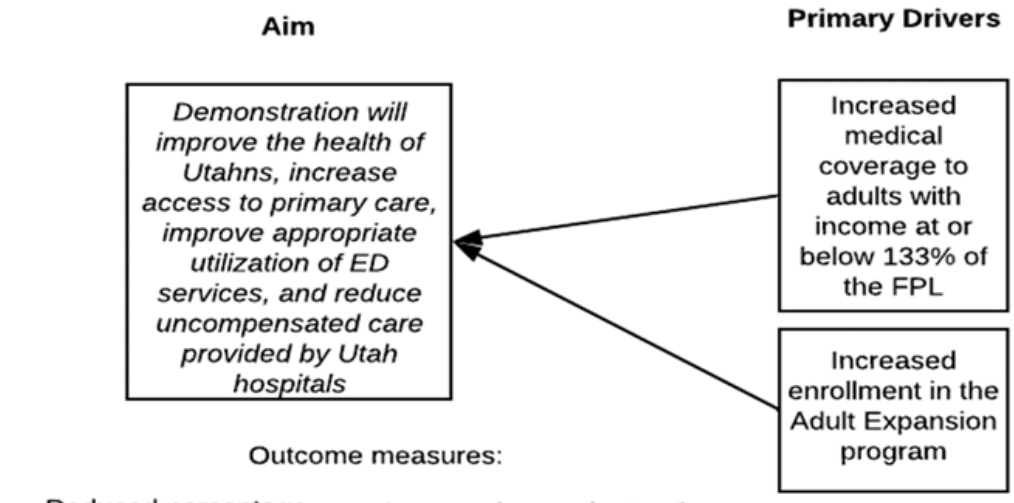
Employer Sponsored Insurance



Outcome measures:

- Reduced overall cost of care for ESI-enrolled individual compared to non-ESI enrolee

Adult Expansion



Outcome measures:

- Reduced percentage of individuals without insurance
- Improved asthma medication ratio
- Percent of adults with an outpatient visit and documented BMI assessment
- Improved annual rate of individuals with a preventative care visit per 1,000
- Decreased percentage of average monthly ED visits without a qualifying diagnosis
- Reduced total annual cost of uncompensated care.

3. Data Sources

Data sources to be used in this design will include several sources. First, UDOH's Medicaid (HIPPA transaction set) consisting of a cleaned set of all Utah claims data for the time period specified. Data from this source is available prior to (4/1/2019) waiver approval and throughout the demonstration. The second data set that will be used for comparison purposes previously discussed will be the APCD. This database contains individual level data from health insurance carriers, Medicaid, and third party administrators in Utah. This comprehensive data set includes medical, pharmacy, and dental claims as well as insurance enrollment and health care provider data. The other data sets that will be used include BRFSS, and the Healthcare Cost Report Information System (HCRIS). Both of these data sets contain state-level data that can be used in the DiD designs.

Both the Medicaid data and the APCD are considered high quality data sources.

4. Analytic Methods

A combination of quantitative statistical methods will be used for the analysis. Specific measures will be utilized for each demonstration as detailed in Table 4. While the Demonstration seeks to increase service provision and promote quality care, observed changes may be attributed to the Demonstration itself and/or external factors, including other State- or national-level policy or market changes or trends. For each Demonstration activity, a conceptual framework will be developed depicting how specific Demonstration goals, tasks, activities, and outcomes are causally connected to serve as the basis for the evaluation methodology. Methods chosen will attempt to account for any known or possible external influences and their potential interactions with the Demonstration's goals and activities. The evaluation will seek to isolate the effects of the Demonstration on the observed outcomes in several ways:

The evaluation will incorporate baseline measures and account for trends for each of the selected variables included in the evaluation. Medicaid data for each of the targeted variables and measures will be analyzed bi-annually so that outcome measures and variables can be monitored on a regular basis. The hypotheses (see Table 5 below) involving the DiD design of comparing SUD clinically managed withdrawal demonstration population Salt Lake County with clinically managed withdrawal services in non-demonstration counties will use regression analysis / propensity score matching. Comparison groups will be created via matching using the APCD to control for and isolate effects of several of the waiver components and the difference-in-difference (DiD) and SITS methods will adjust for differences in comparison populations over time.

Table 4: Summary of Hypothesis, Research Questions, Outcome Measures, Populations, Data Sources, and Analytic Approaches.

TAM Dental

Hypothesis 1. The Demonstration will improve SUD treatment completion among the targeted adult Medicaid (TAM) population.				
Research Question	**Outcome measures used to address the research question**	**Sample or population subgroups to be compared**	**Data Sources**	**Analytic Methods**
Q1. Will individuals receiving comprehensive dental treatment have a higher rate of SUD treatment completion?	Number of days in treatment, percent retained in treatment >90 days, and percent completing treatment successfully	TAM Individuals receiving SUD treatment with comprehensive dental care compared to TAM individuals receiving SUD treatment without comprehensive dental care	Medicaid claims data	Quasi-experimental DiD analysis comparing SUD completion rates with and without comprehensive dental treatment in a single interrupted time series design

Clinically Managed Withdrawal Services

Hypothesis 1. The Demonstration will reduce emergency department services for SUD.				
Research Question	**Outcome measures used to address the research question**	**Sample or population subgroups to be compared**	**Data Sources**	**Analytic Methods**
Q1. Will the number of individuals receiving emergency department services for substance use disorder decrease in	ED utilization rates for SUD	Individuals in waiver-implementing county (Salt Lake) receiving SUD services in an ED prior to the waiver and post waiver compared to individuals in	Medicaid claims	Quasi-experimental DiD analysis comparing waiver implementing (Salt Lake County) vs. those in non-implementing

waiver implementing counties? Q2. Will ED expenditures decrease for substance use disorder services in implementing counties?	 ED expenditures for SUD treatment	non-implementing counties (Weber, Davis, and Utah). Individuals in non-waiver counties receiving SUD services in an ED prior to the waiver and post waiver.		counties in a single interrupted time series design
Hypothesis 2. The demonstration will reduce inpatient hospitalization days for SUD.				
Q1. Will the number of inpatient hospitalization days for SUD services decrease in waiver implementing counties?	Utilization rates for inpatient hospital-based SUD services. Number of days in treatment.	Individuals in waiver-implementing county (Salt Lake) receiving inpatient hospital-based SUD services prior to the waiver and post waiver. Individuals in non-waiver implementing counties receiving inpatient hospital-based SUD services prior to the waiver and post waiver.	Medicaid claims	Quasi-experimental DiD analysis comparing waiver implementing (Salt Lake County) vs. those non –implementing counties in a single interrupted time series design

Hypothesis 3. The demonstration will increase lower cost SUD treatment approaches such as outpatient visits, intensive outpatient, or partial hospitalization.				
Q1. Will the number of outpatient (OP), intensive outpatient (IOP), or partial hospitalization visits for SUD services increase in Salt Lake County?	Utilization rates for outpatient (OP), intensive outpatient (IOP), or partial hospitalization in Salt Lake County.	Individuals in waiver-implementing county (Salt Lake) receiving outpatient, intensive outpatient, or partial hospitalization SUD services prior to the waiver and post waiver. Individuals in non-waiver implementing counties receiving outpatient, intensive outpatient, or partial hospitalization SUD services prior to the waiver and post waiver.	Medicaid claims	Quasi-experimental DiD analysis comparing SUD utilization rates for outpatient (OP), intensive outpatient (IOP), or partial hospitalization treatment in a single interrupted time series design in Salt Lake County vs. non-implementing counties

Adult Expansion

Hypothesis 1. The Demonstration will improve the health and well-being of Utahans.				
Research Question	**Outcome measures used to address the research question**	**Sample or population subgroups to be compared**	**Data Sources**	**Analytic Methods**
Q1. Will the adult expansion reduce the number of uninsured?	Percentage of individuals without insurance	Adult population with incomes between 0-100% FPL	Behavioral Risk Factor Surveillance System (BRFSS)	Quasi-experimental DiD analysis comparing uninsured adult populations in Utah and other states in a single interrupted time series design

Q2. Will the adult expansion improve the health of those enrolled?	Asthma medication ratio. Percent of adults with persistent asthma with a ratio of controller medications to asthma medications of .50 or greater during the measurement year.	Adult expansion population Matched adults in Medicaid database /APCD	Medicaid claims Utah All Payer Claims Database	Quasi-experimental Logistic regression / propensity score matching controlling for age, gender, and health condition.
Q3. Will the adult expansion improve the health of those enrolled?	Percent of adults with an outpatients visit, with a documented BMI assessment.	Adult expansion population Matched adults in Medicaid database /APCD	Medicaid claims Utah All Payer Claims Database	Quasi-experimental Logistic repression / propensity score matching controlling for age, gender, and health condition.
Hypothesis 2. The Demonstration will increase access to primary care and improve appropriate utilization of emergency department (ED) services by Adult Expansion members.				
Q1. Will the adult expansion increase access to primary care?	Annual rate of individuals with a preventive care visit per 1,000.	Adult expansion population Matched adults in Medicaid database /APCD	Medicaid claims Utah All Payer Claims Database	Quasi-experimental
Q2. Will the adult expansion reduce non-emergent ED utilization?	Percent of average monthly ED visits without a qualifying diagnosis (non-emergent).	Adult expansion population Matched adults in Medicaid database /APCD	Medicaid claims Utah All Payer Claims Database	Quasi-experimental Logistic repression / propensity score matching controlling for age, gender, and health condition.

Hypothesis 3. The Demonstration will reduce uncompensated care provided by Utah hospitals.				
Q1. Will implementation of the waiver reduce uncompensated care?	Total annual cost of uncompensated care.	Utah hospitals uncompensated care, pre – and post waiver demonstration	Comparison to other states based on Center for Budget & Policy Priority definition: any services for which a provider is not reimbursed Pre-waiver and annual costs.	Quasi-experimental Analysis comparing uncompensated care in Utah and other states in a single interrupted time series design.

Employer Sponsored Insurance (ESI)

Hypothesis 1. The Demonstration (subsidizing ESI enrollment) will reduce Medicaid program costs.				
Research Question	**Outcome measures used to address the research question**	**Sample or population subgroups to be compared**	**Data Sources**	**Analytic Methods**
Q1. Will the overall cost of care for ESI enrollee be lower than a non-ESI enrollee?	Overall cost of care for ESI-enrolled individual compared to non-ESI enrollee.	Adult expansion individuals receiving ESI reimbursement compared to adult expansion individuals who are non-ESI enrollees.	Medicaid claims	Quasi-experimental Propensity score matching approach controlling for age, gender, and health condition.
Hypothesis 2. Administrative cost of operating the demonstration.				
Q1. What are the total administrative costs associated with implementation of the waiver?	Includes: cost of DWS contract for staff time and information technology (IT) upgrades required to	Individuals subject to community engagement requirements	UDOH Medicaid costs, DWS contract costs. Annual administrative costs	Descriptive analysis of all DWS and UDOH costs required to plan, administer, and implement the demonstration.

	plan, administer and implement demonstration policies.			
Q2. What are the costs associated with ESI subsidies?	Process Measures	N/A	Medicaid claims, eREP data	Descriptive analysis
Q3. Which beneficiaries are offered ESI?	Process Measures	N/A	Medicaid claims, DWS State Admin data, eREP data	Descriptive analysis

D. METHODOLOGICAL LIMITATIONS

The first potential limitation is ensuring each individual analysis is based on unduplicated data. SRI staff and researchers from the University of Utah Economics Department will work closely with Utah Medicaid data personnel and Utah Department of Health to ensure the data used for final analysis is as accurate as possible and that errors in the APCD have been minimized to avoid duplication.

E. ATTACHMENTS

A. Independent Evaluator

The Social Research Institute (SRI) will conduct all activities related to this proposal to fulfill the evaluation requirements of Utah's 1115 PCN Waiver with specific emphasis on conducting data analysis to ensure timely reporting. SRI was established in 1982 as the research arm of the College of Social Work. Its goal is to be responsive to the needs of community, state, national and international service systems and the people these systems serve. Through collaborative efforts, SRI facilitates innovative research, training and demonstration projects. SRI provides technical assistance and research services in the following functional areas: conducting quantitative and qualitative research; designing and administering surveys; analyzing and reporting data analysis; designing and conducting needs assessments of public health and social service problems and service systems; planning and implementing service delivery programs; evaluating program and policy impacts; training in research methods and data analysis; providing technical assistance.

SRI staff are experienced in complying with state and federal laws regarding protecting human subjects and assuring confidentiality of data. SRI will complete the required IRB applications for this project including any data sharing agreements that may be necessary. SRI staff comply with generally accepted procedures to safeguard data by ensuring all data is stored on password protected and encrypted computers. Specifically, we use two-factor authentication (2FA) verification as an extra layer of security. All data collection and analysis SRI is responsible for will be based on the agreed upon data collection plan and in accordance with HIPAA-compliant data management systems available to University of Utah researchers.

Independent Evaluator Selection Process

SRI staff have contracted with the Utah Department of Human Services, Division of Child and Family Services (DCFS) to evaluation their IV-E waiver demonstration project for the past 4 years. Simultaneously, SRI also served as the independent evaluator for the State of Idaho's IV-E waiver demonstration for two years. Within the past year, key research staff from DCFS who were familiar with the work performed by SRI staff changed jobs and now work for UDOH Office of Health Care Statistics. As result, when UDOH was trying to locate an independent evaluator a referral was provided and several

preliminary meetings and discussions were held. This led to SRI developing a proposal for UDOH to conduct the Demonstration evaluation.

The research team will consist of Rodney W. Hopkins, M.S., Research Assistant Professor, Kristen West, MPA., Senior Research Analyst, and Jennifer Zenger, BA, Project Administrator.

Mr. Hopkins in an Assistant Research Professor and has 25 years' experience in conducting program evaluations for local, state, and federal agencies. He has an M.S. and will be the project lead, with responsibility for evaluation design and implementation, data collection, and reporting. He will be .45 FTE.

Kristen West, MPA (.25 FTE) is a Senior Research Analyst with experience conducting multi-year program evaluations for DCFS and JJS. She has expertise with a variety of statistical software programs to analyze data including multi-level regression models, linear regression, and descriptive statistics (SPSS and R). She also has experience developing and data visualization dashboards. Jennifer Zenger (.05 FTE) is SRI's Project Administrator and has 25 years' experience in budgeting, accounts payable, and working with state and federal agencies. She will be responsible for contract setup, monitoring, and accounting services.

An interdepartmental consortium has been established between SRI and the University of Utah's Department of Economics and the Department of Family and Consumer Studies. The Department of Economics, Economic Evaluation Unit led by Department Chair, Norm Waitzman, Ph.D., (.03 FTE) a Health Economist who has extensive health care utilization and cost analysis experience will lead this effort. The other principal researcher is Jaewhan Kim, Ph.D. (.21 FTE) a Health Economist and Statistician with a broad background in health care utilization and cost analysis, statistical design and data analysis including cohort studies and cross-sectional studies. He currently co-directs the Health Economics Core, Center for Clinical & Transitional Science (CCTS) at the University Of Utah School Of Medicine. He has expertise in analyzing claims databases for health care utilization and costs and has worked on multiple federal studies of health care utilization using diverse claims data such as Medicare, Medicare-SEER, Medicaid, MarketScan, PHARMetrics, University of Utah Health Plan's claims data and Utah's All Payers Claims Database (APCD). He was one of the original l developers of the APCD, published the first paper with Utah's APCD data, and has worked collaboratively with other researchers to successfully conduct more than 20 studies using the APCD. They will also be supported by a to-be-named Graduate Research Assistant (1.0 FTE).

D. References

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APPENDIX 1

BUDGET – Targeted Adult Management – SUD Dental

Evaluation Components	2020	2021	2022	2023	Total Cost
Data analytic plan & timeline	2,500	1,500	1,500	-	5,500
Retrospective data analysis	20,000	10,000	-	-	30,000
Beneficiary survey data collection, including follow up	10,550	35,000	35,000	-	80,550
Qualitative and quantitative data analysis and cleaning	5,000	35,000	30,000	5,000	75,000
Draft and Final Interim Reports	3,000	22,000	-	-	25,000
Draft and Final Summative Reports	-	-	3,000	17,000	20,000
Total	**$41,050**	**$103,500**	**$69,500**	**$22,000**	**$235,050**

TIME LINE

Evaluation Components	2020	2021	2022	2023
Data analytic plan & timeline	09/2020	Quarterly	Quarterly	-
Retrospective data analysis	10/2020	05/2021	1/2022-12/2022	-
Beneficiary survey data collection, including follow up	-	1/2021-12/2021	1/2022-12/2022	-
Qualitative and quantitative data analysis and cleaning	-	Ongoing/ by need	Ongoing/ by need	Ongoing/ by need
Draft and Final Interim Reports	-	05/2021	-	-
Draft and Final Summative Reports	-	-	-	10/2023

BUDGET – Adult Clinically Managed Withdrawal

Evaluation Components	2020	2021	2022	2023	Total Cost
Data analytic plan & timeline	2,500	1,500	1,500	-	5,500
Retrospective data analysis (2016 – 2019 data)	40,000	10,000	-	-	50,000
Quantitative data analysis and cleaning	5,000	45,000	30,000	5,000	85,000
Draft and Final Interim Reports	5,000	15,000	-	-	20,000
Draft and Final Summative Reports	-	-	5,000	10,000	15,000
Total	**$52,500**	**$71,500**	**$36,500**	**$15,000**	**$175,500**

TIME LINE

Evaluation Components	2020	2021	2022	2023
Data analytic plan & timeline	09/2020	Quarterly	Quarterly	-
Retrospective data analysis (2016 – 2019 data)	10/2020	5/2021	-	-
Quantitative data analysis and cleaning	-	Ongoing/ by need	Ongoing/ by need	Ongoing/ by need
Draft and Final Interim Reports	-	05/2021	-	-
Draft and Final Summative Reports	-	-	12/2022	10/2023

BUDGET – Adult Expansion

Evaluation Components	2020	2021	2022	2023	Total Cost
Data analytic plan & timeline	10,500	5,500	2,500	-	18,500
Retrospective data analysis (2016 – 2019 data)	30,000	40,500	-	-	70,500
Quantitative data analysis and cleaning	10,000	45,000	40,000	-	95,000
Draft and Final Interim Reports	5,000	25,000	-	-	30,000
Draft and Final Summative Reports	-	-	15,000	25,000	40,000
Total	**55,500**	**116,000**	**57,500**	**25,000**	**254,000**

TIME LINE

Evaluation Components	2020	2021	2022	2023
Data analytic plan & timeline	09/2020	Quarterly	Quarterly	-
Retrospective data analysis (2016 – 2019 data)	10/2020	10/2021	10/2022	-
Quantitative data analysis and cleaning	-	Ongoing/ by need	Ongoing/ by need	Ongoing/ by need
Draft and Final Interim Reports	-	05/2021	-	-
Draft and Final Summative Reports	-	-	-	10/2023

BUDGET – ESI

Evaluation Components	2020	2021	2022	2023	Total Cost
Quantitative data analysis and cleaning	$25,000	$50,000	$65,000	-	$140,000
Draft and Final Interim Reports	$5,000	$10,000	-	-	$15,000
Draft and Final Summative Reports	-	-	$8,000	$15,000	$23,000
Total	**$30,000**	**$60,000**	**$73,000**	**$15,000**	**$178,000**

TIME LINE

Evaluation Components	2020	2021	2022	2023
Quantitative data analysis and cleaning	-	Ongoing/ by need	Ongoing/ by need	Ongoing/ by need
Draft and Final Interim Reports	-	05/2021	-	-
Draft and Final Summative Reports	-	-	-	10/2023